

REMARKS

The title in the specification was objected to and the objection obviated by amendment of the title above.

Claim 6 has been amended and new claims 11-21 added. The material included in such claims is considered fully supported by the application as filed and does not, therefore, constitute the addition of new matter. Entry of the amendment and new claims is requested.

The rejection of claims 6-7 and 9-10 as anticipated by Japanese reference (63-270, 121) is traversed for the following reasons. The subject invention, as claimed, is directed to a mandrel that comprises a pair of opposite legs that function to reconfigure the end of a hose, with at least one of the legs having a curved portion (claim 6). Both legs may be curved (claim 7), and a hollow tube (claim 8) or a base rod (claim 9) may be utilized as a connective member to join the opposed legs together. A threaded engagement couples the leg(s) to the connective member (claim 10). By means of the opposed legs, opposite ends of a hose may be simultaneously reformed into a curved shape unlike the prior art that teaches anchoring one end of the hose while reforming the opposite end, then reversing the hose to reform the previously anchored end.

It should be appreciated that the threaded connection of each leg to the connective member offers distinct advantages. First, the legs may be readily replaced with legs of other geometry if desired with minimal inconvenience. Secondly, the position of each leg may be changed relative to the connective member and the opposite leg by screwing the leg in or out. Such an adjustment may change the angle of each leg and its spacing from the opposite leg, allowing the mandrel to be quickly and easily adjusted to accommodate hoses of varying length and construction. Simply stated, lack of an adjustment capability in a curved hose forming mandrel severely limits its versatility and utility.

The specification illustrates the state of the art in FIGS. 1 and 5. In the prior art, a curved leg of a mandrel is used to reform one hose end while an opposite end of the mandrel leg is anchored by means of a fixture (see 102 in FIG 1). Sequential reformation of opposite ends of the hose is time consuming and degrades efficiency in a hose reforming operation in which both ends of the hose are to be curved.

The prior art cited by the Examiner incorporates these same limitations that are inherent in the Prior Art embodiments of FIGS. 1 and 5. Specifically, the Japanese reference '121 teaches a mandrel for molding bent hose, comprising legs 2, 4, 22, 23. However,

contrary to the Examiner's reading, the reference does not teach the use of both legs for reforming the hose ends. Rather, the legs 4, 22, and 23 are mere anchors for receiving and holding an end of the hose in a fixed position while the opposite end is undergoing a re-shaping. The subject invention teaches a double legged mandrel wherein both mandrel legs may be used individually or in combination to simultaneously re-shape one or both ends of a hose. The '121 reference is more akin to the representation of prior art in FIGS. 1 and 5 wherein one end of the mandrel is a socket for anchoring one hose end while the opposite hose end is shaped. It is significant to note that the legs 4, 22, 23 extend linearly and are received into an end of a hose to secure the end to a base. No shaping function is accomplished by legs 4, 22, 23. With regard to legs 22, 23, the shaping of the hose into a arched formation is done by an angled mounting of the legs 22, 23 away (emphasis added) from each other. Therefore, legs 22, 23 can hardly be described as opposed legs (claimed in claims 6, 11, 18) and, in fact, teach away from the subject invention. There is further no teaching in the reference to the use of an adjustment of the attachment of legs 2, 4, 22, 23 in order to alter the relative orientation of the legs to one another or the connective member (pending claims 12-21). The flexibility and versatility found in the subject claimed invention is, accordingly, not achieved or suggested in the cited art.

Likewise, the translation of the '121 reference, contrary to the Examiner's reading, does not teach threading the mandrel legs into a base rod. The '121 legs are attached by a pin 8 to an L-shaped bracket comprising arms 1 and 11. There is no teaching or suggestion of a threaded attachment of legs 2 and 4 into the bracket such that the spacing between ends of the legs is adjustable. The fixed attachment of '121 patent legs to the L-shaped bracket 1, 11 is, therefore, totally dissimilar to and teaches away from the claimed invention.

The addition of Usui patent 4,080,141 to patent '121 in the rejection of claim 8 under 35 U.S.C. 103 is also traversed. Usui teaches an apparatus for producing bent pipe and is totally unrelated to the structure and method of forming curved hose by the use of mandrel legs. The structure 32 is not comparable to mandrel legs that are received within an end of a hose to shape the hose end. Rather, structure 32 in Usui comprises chucks that anchor and hold the ends of a pipe while the middle of the pipe is bent by outside actuation means. Chucks 32 pivotally mount to a support stand and pivot as the pipe is bent by the outside actuator. Structure 362 and 372, moreover, are pusher and receiver mold halves that are not located between free ends of chucks 32 as claimed in the subject application. There is, therefore, no structure in Usui that corresponds to the claim language for a hollow tube

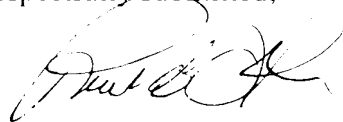
located between the free ends of the opposing legs, legs that, pursuant to claim 6, are received within an end of a hose and act to shape such end.

For the reasons above, the addition of Usui does nothing to ameliorate the deficiencies of the '121 reference. Being non-analogous art, one skilled in the art of hose formation would not look to the pipe bending art as instructive. Even were one to look at Usui for guidance, for the reasons above, Usui does not teach or suggest a hollow tube situated between free ends of hose shaping mandrel legs. Nothing in either reference supports the conclusion that their combination would be obvious and nothing in the references meets the structure found in the claim limitations. The Examiner's combination of Usui with the primary reference '121 is accordingly considered mere unsupported and improper hindsight. Moreover, the combination is insufficient in teaching the claimed invention.

In conclusion, the two cited references do not show a mandrel having legs that are received within ends of hose and function to transfigure the shape of the hose ends. The references show anchoring means for holding an end of hose that is to be formed or bent at the opposite end. Neither reference further teaches a threaded engagement between mandrel legs and a support bar that facilitates an easy adjustment and replacement of mandrel legs. Neither reference teaches a hollow tube situated between free ends of opposed mandrel legs, and neither reference teaches nor suggests opposed mandrel legs having curved portions.

Applicants submit that the subject invention as claimed patentably defines over the cited art, whether such art be considered singularly or in combination. Entry of the amendments and newly submitted claims, a re-examination, and an expeditious indication of allowance of all pending claims are, therefore, solicited.

Respectfully submitted,



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